

**How Will Technology Assist California Law Enforcement  
In Dealing With Alzheimer's Patients by 2014?**

**By**

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The Command College Futures Study Project is a FUTURES study of a particular emerging issue of relevance to law enforcement. Its purpose is NOT to predict the future; rather, to project a variety of possible scenarios useful for strategic planning in anticipation of the emerging landscape facing policing organizations.

This journal article was created using the futures forecasting process of Command College and its outcomes. Defining the future differs from analyzing the past, because it has not yet happened. In this article, methodologies have been used to discern useful alternatives to enhance the success of planners and leaders in their response to a range of possible future environments.

Managing the future means influencing it—creating, constraining and adapting to emerging trends and events in a way that optimizes the opportunities and minimizes the threats of relevance to the profession.

The views and conclusions expressed in the Command College Futures Project and journal article are those of the author, and are not necessarily those of the CA Commission on Peace Officer Standards and Training (POST).

## **How Will Technology Assist California Law Enforcement In Dealing With Alzheimer's Patients by 2014?**

### **Introduction**

In October 2007, an elderly male Alzheimer patient walked away from his home in Fontana, California. One officer responded to the call, but as details were received, three additional officers and a corporal joined in the incident. This equated to approximately 25% of the manpower working that night. Not long after that, volunteers were called in to assist in the search. The officers went door to door at residences and businesses. They constructed a flier to be handed out to citizens. Hospitals and surrounding agencies were notified. As the night wore on, police were preparing to send a flier to news agencies in the hopes that someone, anyone, would recognize the man and call the authorities. Eight hours after officers began their search, the man was located some twelve miles away from his home in Loma Linda, California. He was trying to open car doors at a hospital. No one knows how he got to another city (J. Pitts, personal communication, July 29, 2008).

This incident resulted in a positive outcome for all involved. For the family and the Alzheimer's patient, things worked out as they were all reunited with no medical emergency. For law enforcement, all of the right things were done and the man was located. Unfortunately, this is not always the case. According to the Alzheimer's Association, more than sixty percent of dementia sufferers will wander at some point (Alzheimer's Association, 2008). Tragically, statistics also show that up to fifty percent of dementia sufferers who are not found within the first twenty-four hours will be found

seriously injured or dead (Taylor, 2007). For example, An Alzheimer's patient from Charleston, South Carolina wandered from his nursing home one evening at eight o'clock. Charleston Police searched in vain for the man. Just four hours later, he wandered into the path of a CSX train and was killed (Walters, 2008). With more than five million who suffer from Alzheimer's, this is an issue looming on the horizon for which law enforcement must be better prepared. On the pages that follow we will look at the scope of the problem, its impact on law enforcement, and some steps law enforcement can take to develop a program that will help with the safe recovery of Alzheimer's patients.

### **Alzheimer's Disease**

Law enforcement is used to handling reports of critical missing persons. Commonly it is a child, but increasingly there are the reports of missing adults; a report of an elderly subject who walked away from home and disappeared without a trace. Often they have not been seen for a few hours. The reporting party may state that the missing person is suffering from some type of memory loss, dementia, or Alzheimer's disease. Wandering Alzheimer's patients pose a particularly tough problem for law enforcement, as they likely cannot provide any information about themselves, or where they belong, to law enforcement or to a Good Samaritan who wants to help them.

Alzheimer's disease is a disease of the brain. It destroys brain cells, and interferes with cognitive function. It is progressive and fatal, and there is currently no cure for the disease (Alzheimer's Association, 2008). Alzheimer's disease is named for Alois Alzheimer, a nineteenth-century German doctor who began working with the mentally ill

in 1888. He was especially interested in, and performed research in, the areas of dementia, psychoses, and forensic psychiatry. In 1901, Dr. Alzheimer had the occasion to observe a 51-year old female named Auguste. Auguste had a variety of symptoms including paranoia, disorientation, and hallucinations. By 1903, Auguste had become bed ridden. She became more delusional and incoherent and eventually died in 1906 (Kalamazoo Center for Medical Studies, 2008). After Auguste passed away, Dr. Alzheimer gained permission from Auguste's family to perform an autopsy. He noted there was shrinkage in the brain, especially in the cortex. He also noted the presence of fatty deposits, abnormal deposits of plaques around the brain cells, and tangles in brain cells. Scientists now believe these plaques and tangles interfere with brain cell communication and eventually contribute to cell death.

There are seven stages of Alzheimer's disease. It begins with no noticeable cognitive decline. They move through varying stages of mental impairment. Eventually, the patient develops severely impaired cognitive function and lacks the capability to care for themselves. Typically, the life expectancy for a patient diagnosed with Alzheimer's disease is four to six years (Alzheimer's Association, 2008). If the numbers of Alzheimer's patients were to grow significantly, it could seriously affect law enforcements' ability to deal with the problem.

### **Scope of the Problem**

Alzheimer discovered the disease, but could not foresee its prevalence, especially when one considers the aging of America in the twenty-first century. Consider the statistics of the baby boomer generation who are now reaching retirement age. "Boomers," those born

between the years of 1946 and 1964, is made up of 78.2 million Americans, or more than twenty-six percent of the population (U.S. Census Bureau, 2008). The oldest baby boomers are now 62 years old, which means they are entering the years where Alzheimer's becomes a significant health risk.

The majority of Alzheimer's sufferers are over the age of 65, and the risk of contracting the disease doubles every five years after age 65 (Alzheimer's Association, 2008). There are currently an estimated 5.2 million Americans suffering from Alzheimer's disease, about thirteen percent of the population sixty-five or older (Alzheimer's Association 2008). It is believed that number will increase to as many as 16 million by 2050 (Brophy-Marcus, 2008). Given this data, one can see there is a crisis looming, not only in America, but worldwide.

California fares no better. The following table illustrates the projected number of citizens who are 65 years or older in California, and what percentage of the California population they represent.

<b>YEAR</b>	<b>POPULATION</b>	<b>PERCENTAGE</b>
<b>2000</b>	3,621,598	10.5%
<b>2010</b>	4,412,130	11%
<b>2020</b>	6,350,714	14%
<b>2030</b>	8,835,317	18%
<b>2040</b>	10,498,478	19%
<b>2050</b>	14,636,897	24%

(California Department of Finance, 2008)

From 2000 to 2010, the population of Californians age 65 and older increased by 21.8%, and from 2010 to 2020 the population of Californians over age 65 will increase by 44%.

If thirteen percent contract Alzheimer's, that would represent well over eight hundred thousand patients in California by the year 2020 and almost two million by 2050. With these dramatic increases in patients, and the fact that sixty percent wander at some point, a program that would enable law enforcement to track and identify someone found wandering with no identification or ability to remember where they belong, would be invaluable.

### **Traditional Approach**

The traditional approach in many cases goes like this: A vulnerable citizen has just wandered off and is alone with minimal ability to care for themselves. Officers make contact with the reporting party to glean every bit of information which may be of assistance. Has the patient walked away before? Where were they located on prior occasions? Is the patient familiar with any locations; could they make their way there? The officers will conduct area checks, but is unknown if the patient is even still in the city. Mass transit may offer a patient a convenient manner to escape; many bus services offer free rides to the indigent (an Alzheimer's patient could easily be mistaken as such). If they have been missing for a few hours, they could be almost anywhere in the region. The area to be searched could grow exponentially, and the tools to effectively resolve the incident are sorely lacking.

Various methods are available which enable law enforcement to identify people in other settings. The most common method is an identification card or driver's license.

Unfortunately, it is not practical to think that an Alzheimer's patient will always be in possession of a wallet or any identifying paperwork. Law enforcement also has mobile fingerprint units which are often successful identifying criminals on the street.

Alzheimer's patients, though, are not generally in any criminal databases, which render these units all but useless in this application. One identification aid, however, has proven useful.

Medical alert identification bracelets and necklaces are a popular tool to identify both patient and patient needs for the elderly. Many companies offer medical alert ID, and they generally offer more reliability since they are more often worn by the patient and are more likely to be in their possession if they wander. These tags provide a variety of information. MedicAlert, incorporated in 1956, offers wander assistance as well as the traditional medication and patient information. With one phone call, the wearer (or safety official) can get emergency responders information on medications, medical conditions, and responsible parties (MedicAlert, 2008). The company's wander assistance capacity is especially relevant to families with an Alzheimer's sufferer.

MedicAlert has teamed with the Alzheimer's Association to form the Safe Return Program, which provides a wallet card and an identification bracelet or pendant. The concern for these items of personal jewelry, though, is they can be removed by the wearer, or by one intending harm to the patient. They can also break and fall off of the



patient, rendering it useless (Alzheimer's Association, 2008). This idea of providing medical or identification information is still solid. The methodology, however, should be updated to match current technological capabilities to provide the same information in a more secure manner.

### **How Technology Can Help**

Radio frequency identification chips [RFID] are small microchip identification tags. They can be placed on products implanted into animals and even humans. There are three types of RFID chips including passive, active, and semi-passive. Passive chips are not powered in any way and can only be read from a very close distance- up to a few meters. They are extremely small and can be placed under a product sticker, or implanted under the skin.

Active chips are battery powered and can be read from several hundred meters. They have a battery life of approximately ten years. They are larger and are about the size of a coin. The semi-passive chips are also battery powered, but only to power the chip and not to broadcast a signal (Radio Frequency Identification, 2008).

RFID have become a commonality among veterinarians. They implant a small, passive chip the size of a grain of rice under the skin of an animal. This chip can be scanned with a reader and provide a variety of data, including the identity of found animals. These chips do not provide the ability to track an animal, only to identify it and gather information (Stevenson, 2008). Due to the fact the chips are implanted, they have no chance of falling off or being removed. This is an aspect of their performance that could be of special interest to those seeking to identify persons who cannot identify themselves.

The VeriChip Corporation has designed an implantable RFID chip for human use. It is a passive chip, which is energized by a reader when it is scanned. It provides an identification number which can be entered into a secure computer database to provide medical information about the individual. VeriChip customers can download any information they choose into the database such as medical records, address, phone number, etc. The chip is implanted just under the skin and feels similar to getting a shot. Digital Applied Solutions, who was partnered with VeriChip Corporation at one time, did develop an implantable chip capable of being tracked. The device measured about the size of a pacemaker; 2.5 inches in diameter X .5 inches deep. It was surgically implanted. The device performed well in testing, but has not been approved by the FDA yet. This device was charged by induction-based power recharging, similar to a pacemaker, and required no physical connection. The company's hope was to reduce the size of the device considerably. The chip was tracked utilizing the Global Positioning System [GPS](Gossett, 2003). In California, with existing programs to provide GPS monitoring for other purposes, tracking an Alzheimer's patient is an emerging reality.

California passed Jessica's Law in 2006, mandating the use of GPS to track sex offenders (California Department of Corrections, 2008). The offender wears an ankle bracelet, and is monitored through the use of a computer. Several companies have entered the personal GPS locator market, with a varying level of technology and services. One company, Global Tracking Group, offers a small, lightweight GPS device which is smaller than a standard pager. The UBI-500 is weatherproof and allows you to track the device as many as five hundred times per month utilizing the company's secure mapping website (Global

Tracking Group, 2009). Another company, Lightning GPS, offers the Spark Nano. It is about the size of a nine volt battery. It has a battery life of approximately five days and is rechargeable. It has a “geofence” option which allows the user to program in a geographical area and receive an alert if the device goes out of that area. It costs about three hundred dollars, and has monthly rates which vary depending on how much tracking is done, similar to the Global Tracking Group. The company also uses a mapping program available on a secure website (Brick House Security, 2009).

As one assesses the potential of this approach, the possibilities are bounded only by the breadth of information desired to assist law enforcement and medical personnel. The Horizon Blue Cross Blue Shield insurance company in New Jersey has already considered reimbursing some of the costs for RFID implants (Chin, 2006). If advocates support the expansion of GPS identity and tracking, it can dramatically impact the safety of those who cannot care for themselves

### **How We Can Get There**

Policing agencies should strongly consider establishing a Missing Elderly Person Program (MEPP). To make MEPP as effective as possible, it would be important to gain participation from multiple agencies in the region. This would allow for the purchase of equipment in bulk, the sharing of manpower to set up the program, and to conduct a comprehensive review of potential social service and technology partners. With options including GPS tracking as a centerpiece, the MEPP would become the locus of control for training, liaison and response to the issues of the elderly.

Law enforcement can lead the effort to partner with a technology company that would be dedicated to public safety. Choosing a company that had specific features such as the “geofence” offered by Lightning GPS would go a long way to minimizing the time wanderers are missing. The geofence is a cell phone alert prompted when the boundary of the wearer is broken. In most instances, the wandering patient likely would not have a chance to even leave their neighborhood. For others, GPS could pinpoint the person’s location within forty seconds. MEPP could also offer access to a RFID implant program.

As discussed, RFID implants would allow for the identification of a wandering patient with no identification. The chip would be read with a scanner and would contain an identification number. That number would be entered into a data base which would provide a variety of information. Law enforcement could team with a company such as Google, who could provide a large storage database. Google could provide limited access to the secure files based upon password protection (C. Mistry, personal communication, September 28, 2008). In the event a family would want to participate in the RFID implant portion of the program, they would decide what information they would like included in the data base, such as medical record information, prescription information, responsible party information, address, phone number, and doctor information.

With the advent of a program such as MEPP, law enforcement would no longer be reliant on significant personnel resources to track down Alzheimer’s patients. One or two officers would easily be able to handle the issue, whether it be tracking a patient or identifying a found patient with no identification. The time spent searching for those who

walk away, or trying to identify and return those who are found on the street will be cut dramatically. Additionally, MEPPs would consistently evaluate new technologies as they arise. They would adapt as necessary to ensure the program remained cutting edge. Insurance companies would be lobbied to help cover costs. Government entities would be lobbied to establish grant funding to assist with start up and/ or operating costs.

As battery technology improves, and nanotechnology continues to evolve, devices are becoming smaller and more effective; just as the cell phone has evolved from a large brick-type phone to a lightweight three inch square and half inch wide device capable of acting as a phone, camera, computer, and music and video player. There have been hints on websites and blogs that an implantable chip may already be in use in military circles, but there is no concrete data supporting that. If existing RFID capabilities are joined with tracking capacity, their use can not only be effective for enforcement and interdiction, but to ensure the safety of a growing population of seniors who cannot otherwise protect themselves.

## **Conclusion**

How will law enforcement deal with this problem in the future? Will they ignore it until it is no longer ignorable? The idea of doing nothing could have significant repercussions. Law enforcement should never be satisfied with remaining status quo. In today's budget climate, the idea of instituting a major program such as MEPP may seem daunting when considering costs of new technologies and the dedication of manpower to a project. Waiting until the problem has become too large, however, likely will make program implementation much more cumbersome. Inevitably, there are potential social, political

and moral considerations when one contemplates the use of implantable ID and tracking. No matter what the objections, though, the concept is worth the cost.

Not only can a MEPP benefit law enforcement tremendously, it is simply the right thing to do. Short of a cure being found for Alzheimer's, creating a program to effectively mitigate critical missing patients is the way to go. In the opening example, we witnessed a police department's traditional approach to the event. It was successful, officers did everything they could and they used the tools available to them. It still took a good bit of fortune for the story to have a happy ending. How long will the door knocking and driving around be enough?

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